International Transit Studies
Tools & Systems

FTA State of Good Repair Roundtable

July 22, 2010

Questions Posed

- What systems / tools do you use to maintain and report on
  - Inventory of Assets?
  - Operating / Maintenance Costs?
  - Condition of Assets?
  - Planned Rehabs / Replacement?

London – Asset Mgmt Development

- Creating a PPP – wanted to make sure the assets were going to be maintained & improved
- Backlog on capital program for LU 1 ½ billion pounds

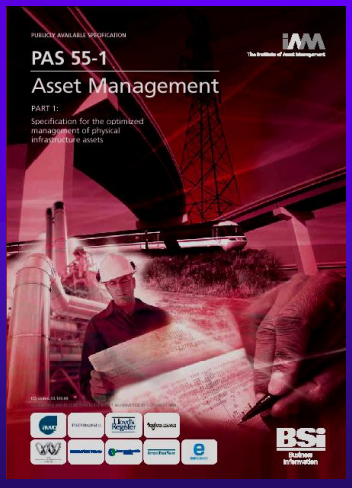
- Monthly infrastructure charge to PPP
  - Responsible for required maintenance
  - Condition benchmarks were a requirement
  - Assets evaluated by residual life & risk
  - 22 ½ years to bring assets in SGR

The PPP contracts

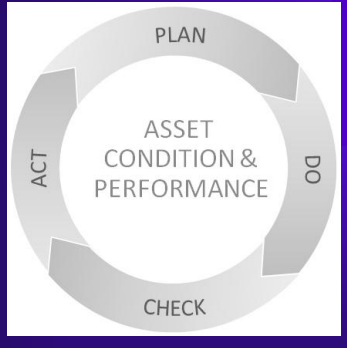
- 3 Predominantly output based 30 year contracts (7.5 year reviews) that set out to achieve
  - Upgrade of all assets and increased system capacity
  - Significantly improved asset performance and reliability
  - No compromise to safety
  - Value for money
- PPP Asset Management Objectives:
  - Efficient and economic whole life asset management
  - Condition to minimize service loss risk
  - Return assets to overall good condition
  - Co-ordination of activities (re. Integrating the Network)

PAS 55 – Asset Management

- Optimal management of assets and related costs require you to evaluate risks and performance on a regular basis.
- Sponsored by Institute of Asset Management UK
- Created standard on how to measure
- Now being adopted as a European standard



Whole Asset Life Management



- Plan helps you to evaluate assets to:
  - build or obtain,
  - how best to maintain and use,
  - and how best to renew, recondition and/or dispose of
- Asset area
  - Asset Base
  - Performance & Condition requirements
  - Key intervention strategies
  - Asset Risk
  - Technology & development strategies

Asset Condition - objectives

- Asset Condition – measure of the condition of assets and the activities determining this.
  - Residual life – time to next "intervention" grouped A – D (10yrs+, 5-10, 1-5, & <1)
  - Residual Risk (functional concerns) / criticality code 1-4 (performance loss to non-compliance)
- Measured against condition improvement benchmarks
- Yearly 'snapshot" of asset condition using data from normal business processes

Condition vs. Performance

- Benchmark set to evaluate all assets and create a plan of replacement
- Performance is a totally separate issue that can not be confused with condition
  - "We will keep our assets safe & reliable"
  - The benchmarks will prove "economic inefficiencies"
  - Show which assets are in a bad state of repair
- "Assets are fit for purpose"

London – Other systems

- Coach life & cost is low
  - Keep buses only 3 years & then sell them
  - Cost of diesel hybrid coach = 100,000 pounds approximately $150k
- Facilities – outside of rail were not managed within London systems (3rd party) therefore not addressed.

Nottingham Tram

- 30 year Agreement – (similar to LU - PPP) with regular condition review
- Assets need to last 5 years beyond life
- 7 years – doing a full analysis review of system
- Funding set aside for mid-life rehab of vehicle

Nottingham

- Road Infrastructure – System called HAMS (Highway Asset Mgmt System)
  - Internal inventory of all assets
  - Condition surveys done annually
  - Bus Infrastructure – part of HAMS
- VOSA – Vehicle Operator Service Agency
  - Standard for bus life cycle (12 – 15 yrs)
  - Annual test (similar to our highway inspection)
- Build into Bus Contracts to do audits of vehicles after one and three years of service

Strasbourg

- Full inventory of all assets by component
- Rolling Stock have a heavy maintenance plan
- Infrastructure – now doing based on PAS55
- Condition assessments done – but not regular
- Life Cycle Costing is used and prove ROI

Karlsruhe

- Application for Funds – require a cost benefit analysis / life cycle
- Maintenance on tracks & rolling stock is based on inspection & driver feedback
- Major backlog
- No separate asset assessment

Berlin Standards

- Vehicles (trams, buses) – rehab / major maintenance plan after 8 years
- Bridges – require major maintenance after 10 years

- OEM required to give full maintenance plan for all rolling stock, equipment & infrastructure.
- Required to maintain a 10 year capital plan – always know back log

Oslo

- Oslo performs a full assessment of entire system every 3 years
- Twice a year – independent firm drives all tracks and assesses condition
- Analysis is presented to Strategic Planning for use of funds

Summary of Findings

- Europe is adopting PAS 55 – "whole life asset management" – industry standard.
- Many challenges to collect information:
  - Cost of collecting must be part of normal business
  - Need to collect "consistent" data @ front line and get into system
- Evaluate risk of taking money out of budget – what does it do to rest of operation?

Summary of Findings (cont)

- Inventory is easy part – need purchase cost & flexible replacement value
- Condition Assessment requires residual useful life and criticality function
- Assessment must be done by your front line as part of your inspections, but must set standards / benchmarks to be consistent
- Should do independent assessment

LBT Take Away

- Rolling Stock Plan is thorough
- Need Comprehensive Facility Plan
  - Full Inventory of Facilities & Equipment
  - Review of all PM's
  - Whole Life Asset Replacement
- Create a Condition Assessment & tie to PM
- Our Enterprise Asset Management system (Mincom) manages whole life
  - Equipment Register
  - Maintenance Materials system
  - Condition assessment
  - Asset Prioritization